Vegetation inventory in the area of the planned wind farm in Valga

05.11.2024 Põlva

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Introduction

This work has been commissioned by OÜ Lemma. The inventory is carried out in areas potentially affected by construction activities, i.e. potential wind turbine locations and possible access roads/sites, and areas within a radius of at least 50 m. During the vegetation survey, the locations of protected vascular plant, fungus and moss species are mapped. If a protected species is found, its abundance in the area is determined and its location is mapped. In addition, communities of high ecological value are mapped in the area – areas that potentially meet the criteria for valuable forest habitats and communities that correspond to habitat types of higher representativeness (A and B) in the Habitats Directive. The survey is carried out if construction areas are planned in areas with potentially high biological diversity, for which vegetation data is insufficient. Areas with high biological diversity are considered to be potential and known areas of habitat types listed in the Habitats Directive (in the case of forests, forest stands older than 60 years), semi-natural communities and wetlands.

Inventory area

The inventory area was formed around the potential locations of wind turbines and possible access roads/sites submitted by the client, with a buffer zone of 50 m. The inventory area covers 410 ha and is located in Valga County, Valga Parish, in the villages of Kiviküla, Tõlliste, Uniküla and Õruste (Figure 1). The locations of protected vascular plants, fungi and moss species encountered during fieldwork but not directly within the study area were also mapped.

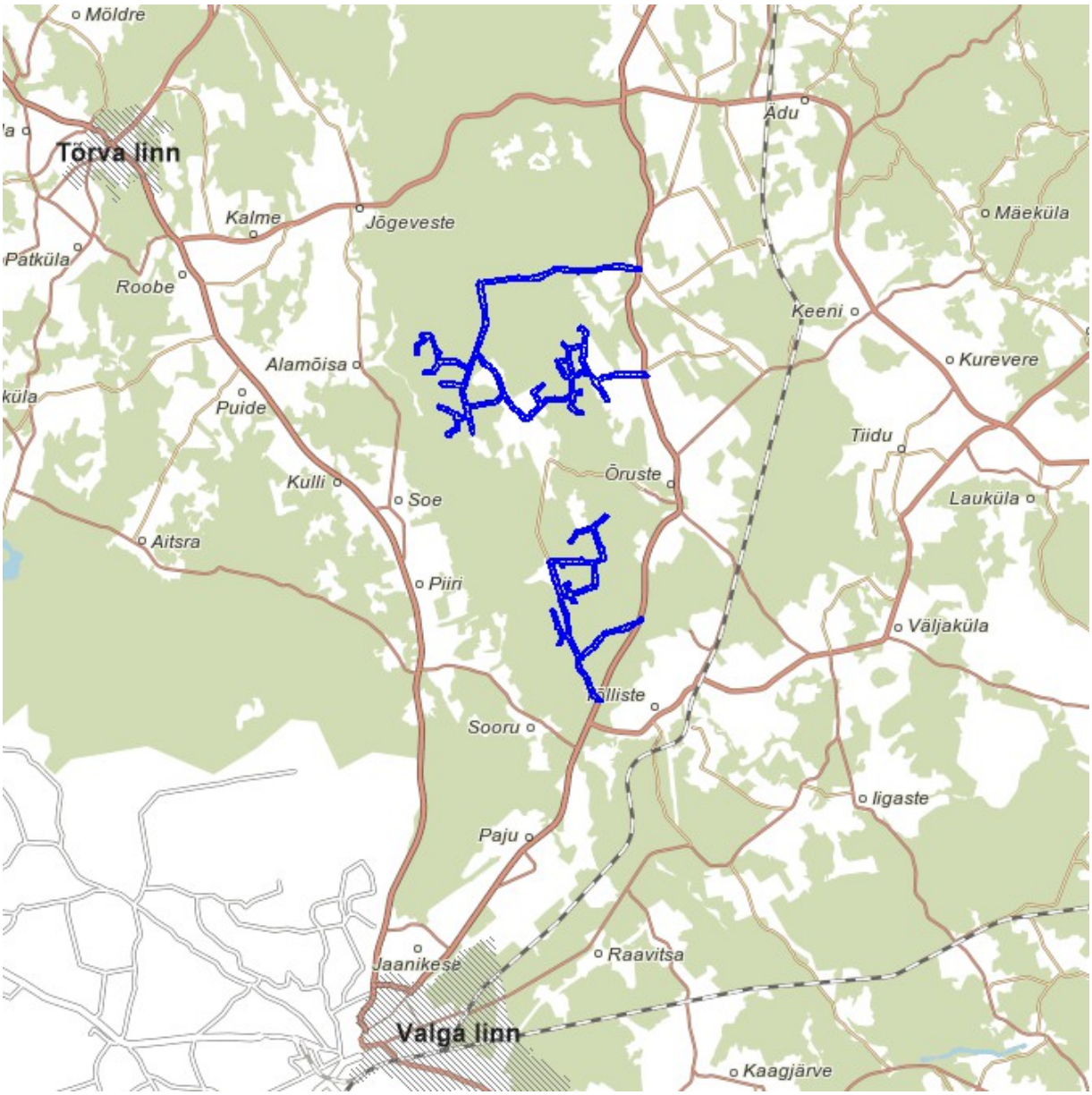

Figure 1. Location of the inventory area

According to the base map, forest land accounts for 314 ha of the inventory area, with the remainder being mainly arable or other land. No valuable mire or meadow communities were identified in the inventory area. According to the forest register, forests older than 60 years cover 11% of the forest area (Figure 2). This is due to heavy economic pressure. Over 70% of the forests belong to the blueberry and hare's-tail grass-blueberry growth type.

Figure 2 Location of old (over 60 years old) forests (red polygons) in the inventory area (blue polygon)

Fieldwork and methodology

To achieve the objective of the work, fieldwork was carried out on 20, 21 and 25 July and 5 August, immediately after the inventory was commissioned. The fieldwork was carried out by Eliisa Pass, Margit Turb and Liisi Peets. A GPS device was used in the inventory to record both the route taken and the locations of important objects and areas worthy of protection. The inventory area was traversed along transects (Figure 3) that remained in the centre of the buffer zone in younger forests (under 60 years old). Higher-value communities were inventoried more thoroughly. Particular attention was paid to potential orchid sites.

Based on the inventory, map layers in shp format (Taimed_elupaigad_region and liik_p6hikirje_taimed_point) were created from the protected site data in accordance with the requirements for entry into EELIS. The routes covered by the inventory can be seen in Figure 3.

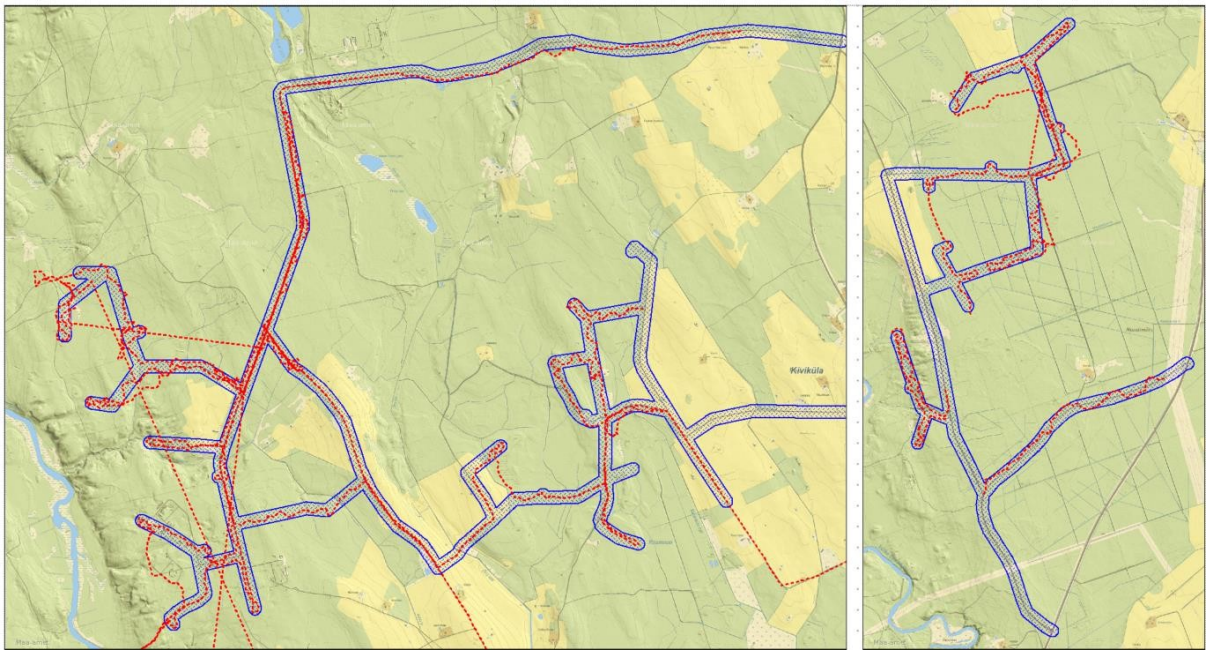

Figure 3 Tracks covered during the inventory in the inventory area (blue polygon)

The aim of the inventory was to identify known and potential communities of higher vegetation value in potentially suitable areas, the avoidance of which as construction areas would prevent significant adverse effects on vegetation. To this end, in addition to the inventory, existing data on the locations of protected plant species and habitats under the Habitats Directive in EELIS and the PlutoF database were analysed.

The study area partially overlaps with the Environmental Agency's RePower study area in Valga-Tõrva. During the RePower project's study of priority areas for wind energy development, inventories of forest[1], meadow[2] and bog[3] habitats were carried out. The habitat types mapped in the referenced inventories were not re-inventoried, even if they fell within the scope of this study. The data is current as of 2023 and does not need to be re-checked.

[1] Consultare OÜ. 2023. Inventory of forest habitats under the Habitats Directive in the Valga-Tõrva study area. Public procurement
'Inventory of forest habitats under the Habitats Directive to identify priority areas for wind energy development (Environmental Agency)', part 14.

[2] Heritage Conservation Association. 2023. Vegetation survey to identify priority areas for wind energy development for the Environmental Agency (Habitats Directive grassland habitats). FINAL REPORT.

[3] Estonian Nature Fund. 2023. Study of mire habitats and plant species in potential wind energy development areas. Public procurement "Vegetation study to identify priority areas for wind energy development
to the Environmental Agency" Part 3 Contract No. 4–5/23/3.

Locations of previously identified protected species and valuable habitats

According to EELIS and PlutoF data, Category III plant species locations have been identified in the region and these
are distributed as follows:

Species	**Locations in EELIS**	**Locations in PlutoF**	**Locations Inventory area**
Belted fingerwort	4	3	
Pale red fingerwort	1	3	
Devil's finger	5	4	1
Marsh marigold	2	3	
Broad-leaved lady's mantle	1		
Large-flowered lady's mantle	3	3	
Greenish cowberry		4	2
Two-leaved lady's slipper	1		
Creeping lady's mantle	3		
Closed air	11		1
Heller's starry night	2		
Wulf's peat moss	1		
Common ungrukold	1		
Bearberry	1		

Data from EELIS and PlutoF show that most of the high-value plant communities are located in old forests near the Väike-Emajõgi River. All of the sites located within the inventory area cover only a small part of the inventory area, and it is therefore likely that the construction of infrastructure will not result in the destruction of these sites (see Figure 4).

In addition, four valuable forest habitats (VEP) are also partially located within the inventory area. Three of these are located near large RMK
roads and one extends into a small part of the inventory area.

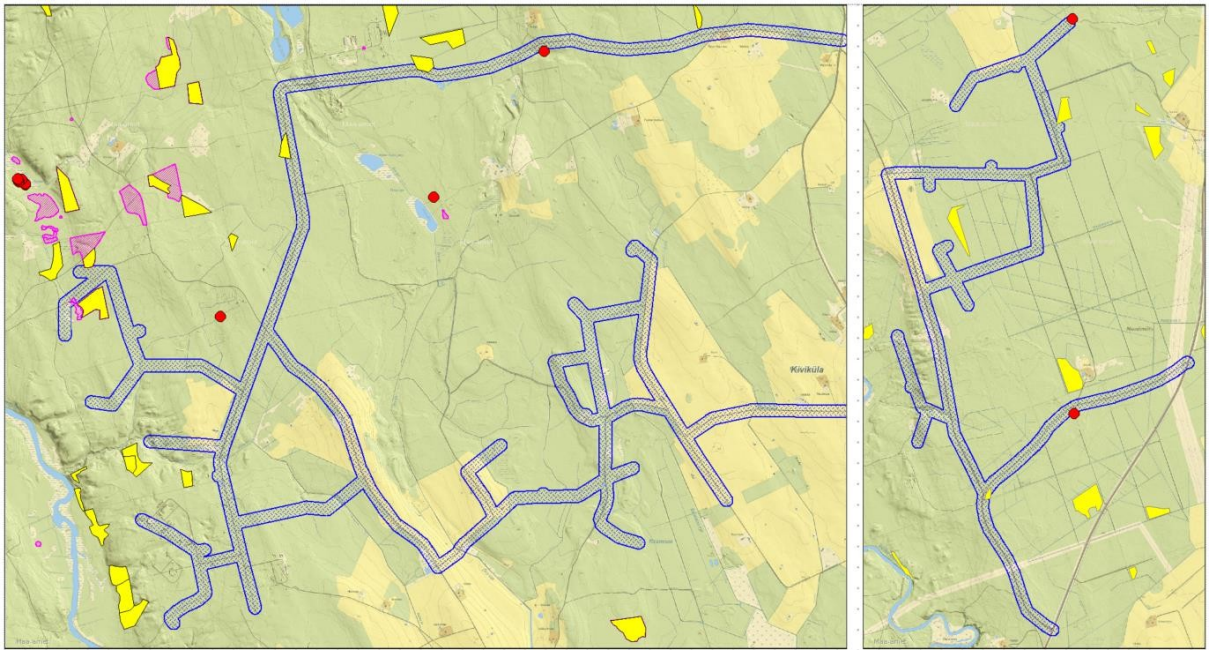

Figure 4 Locations of protected plant species (pink hatched areas and red dots) and locations of valuable habitats (yellow areas) in the inventory area (blue polygon)

Results

Of the protected species, the most common were 18 occurrences of the common twayblade, 4 occurrences of the creeping lady's tresses, 2 occurrences of the broad-leaved marsh orchid, 5 occurrences of the broad-leaved helleborine, 3 occurrences of the marsh helleborine and 1 occurrence of the brown beech. In addition, 8 locations of the common twayblade and 1 location each of the rarer species purple twayblade, red helleborine, greater butterfly orchid and green lichen were mapped, see Figure 5 and Figure 6.

One highly representative forest community under the Habitats Directive was mapped, which was also located outside the direct inventory area. The representative forest habitat type 9010* was located in quarter AA310 er 10.

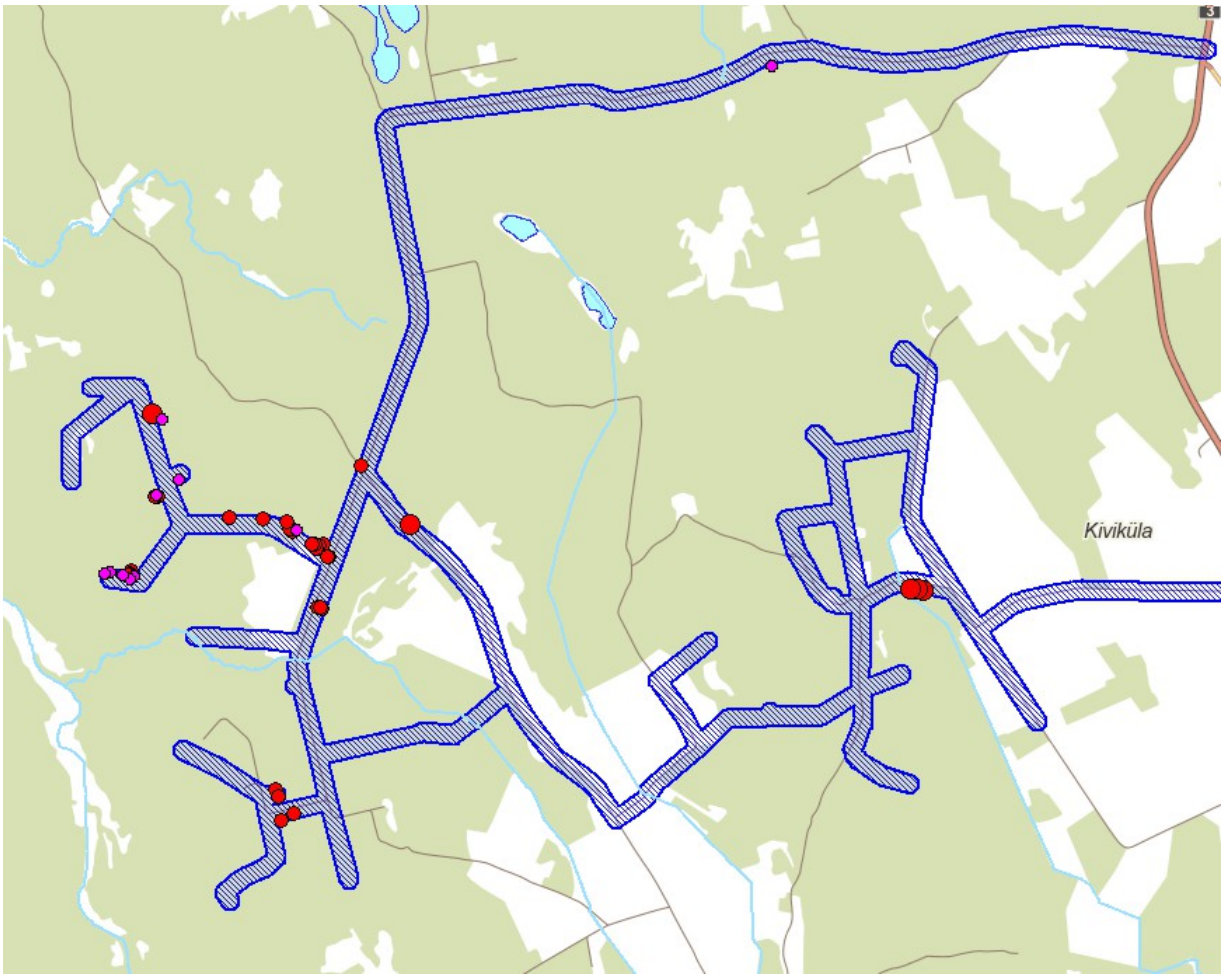

Figure 5 Locations of protected plant species recorded during fieldwork in the northern part of the inventory area (marked with blue lines).

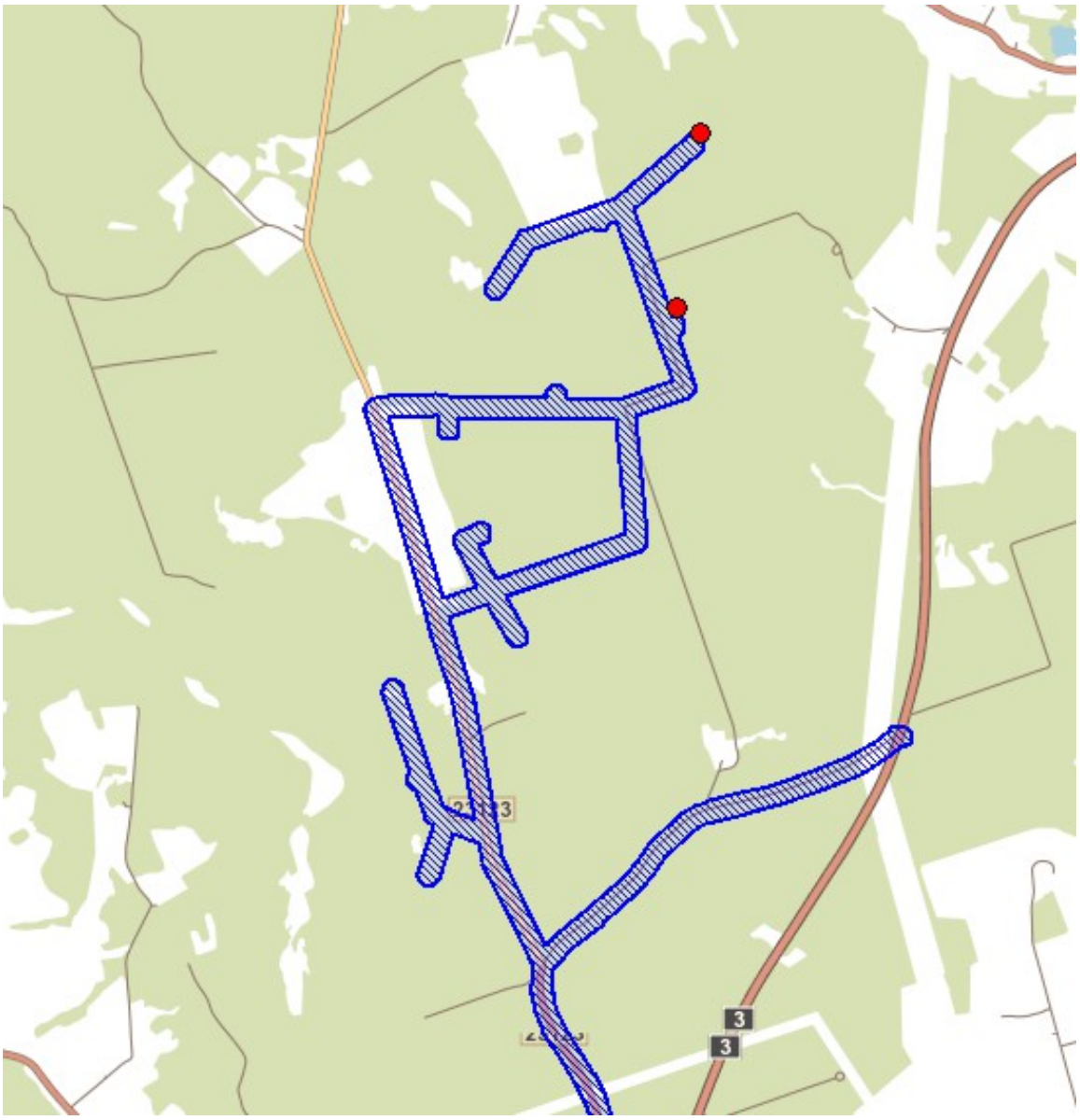

Figure 6 Locations of protected plant species recorded during fieldwork in the southern part of the inventory area (marked with blue lines).

Areas worthy of protection

During fieldwork, 33 locations of Category III plant species and 1 highly representative forest habitat type were mapped. The protected plant species identified are widespread in both Estonia and the region. In addition, many of the locations of protected species were in young or middle-aged commercial forests, and therefore these locations may not remain sustainable. **Despite these circumstances, the locations of protected species and valuable forest habitats (VEPs) must be preserved when planning wind turbines and their access roads.** In most places, it is likely possible to build access roads or wind turbine locations without damaging protected species. The entire inventory area is located in an intensively managed region and, as a result, many habitats of protected plants have already been severely affected by road construction, drainage maintenance or forest management. **Nevertheless, it must be taken into account that at least 50% of the representative locations of protected plant species listed in EELIS must be preserved during the construction of wind turbines.**

In addition to the locations of protected plant species, three areas of high vegetation value were also mapped (Annex 3, ValgaMK layer areas 1-3). In addition to the location of protected species, the natural conservation status of the community was also used as a criterion for selecting valuable areas. Damage to these three areas of higher nature conservation value is completely prohibited, and it is therefore likely that the location of the infrastructure will need to be moved in two of the valuable areas. These three areas are shown in Figure 7. All three areas border clear-cut areas, which would be a much more suitable location for wind turbines and related infrastructure from the point of view of vegetation value.

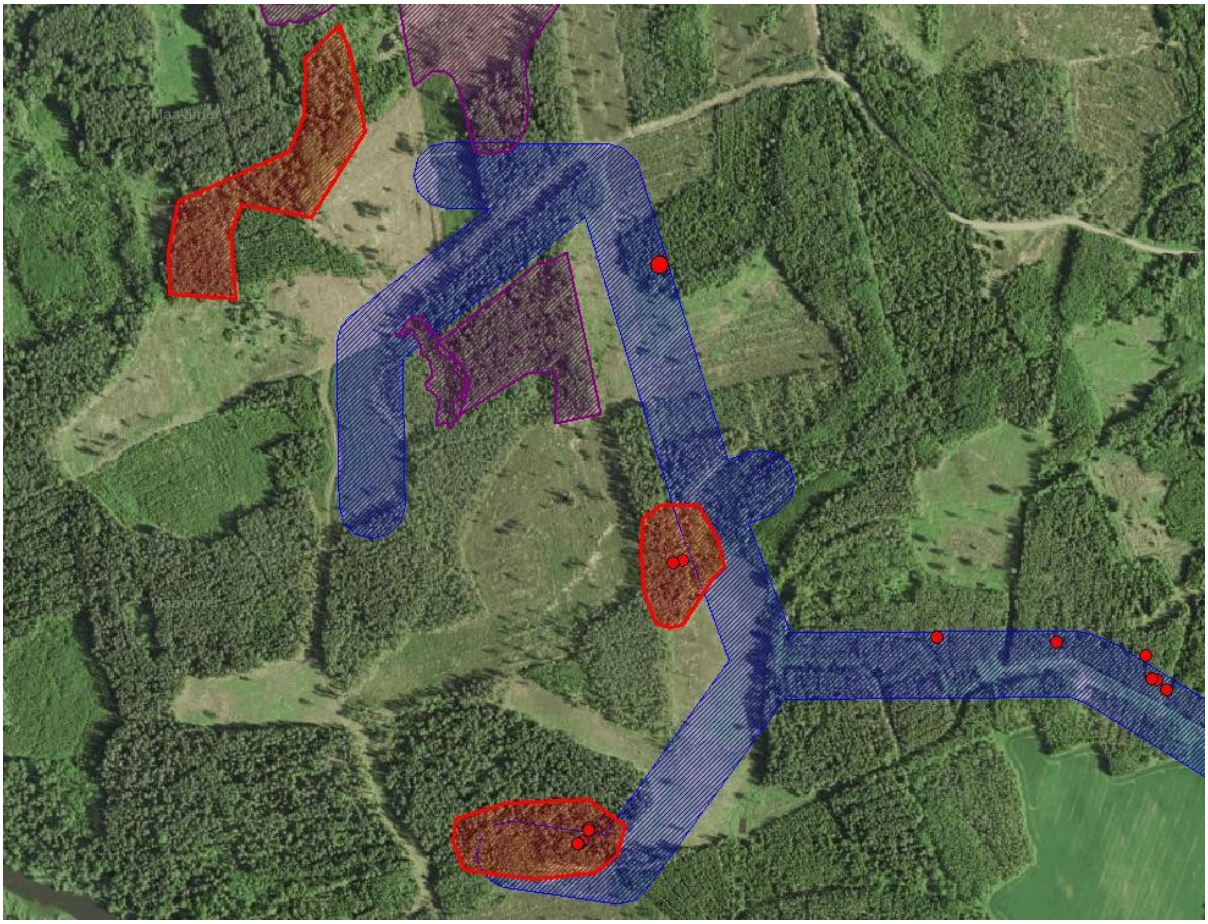

Figure 7 Areas of high nature conservation value identified in the inventory (areas marked in red). The map also shows the inventory area marked in blue, the locations of protected plant species in EELIS marked in purple, and the locations of protected plant species identified in the inventory marked with red dots.